BOTTOM-MATERIAL A8. SAMPLES

Bottom-material samples are routinely analyzed to assess the occurrence, abundance, and distribution of chemical constituents in surface-water systems. The chemical analysis of bottom materials addresses a broad spectrum of objectives in water-quality studies, including surveillance monitoring, mass-transport loading, remediation effectiveness, presence or absence of contaminants, and spatial extent and temporal change of chemical constituents.

Bottom material consists of living and non-living, organic and inorganic material of varying physical, chemical, and biological composition that has been transported by water, ice, and wind and deposited in aquatic systems.

Obtaining samples that are representative of the environment being monitored is essential to the data-collection process and of primary importance to the accuracy of the final result. Data are no better than the confidence that can be placed in sample representativeness (Feltz and Culbertson, 1972). Conscientious scrutiny and quality-control checks applied during laboratory analyses of samples, while necessary, cannot compensate for data that are biased because of samples that are nonrepresentative of the environmental system or that were collected improperly.

A representative bottom-material sample is a sample that:

▶ Typifies ("represents") all possible samples within the study environment determined within the objectives and scope of the investigation.

▶ Results from minimizing all sampling biases.